

Additional Molluscan Records from Bahía de Los Angeles, Baja California Norte

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(1 Map)

BAHÍA DE LOS ANGELES is located on the east side of the Baja California Peninsula about 440 km south of the United States Border (29°00'N; 113°30'W). The area covers approximately 63 square kilometers and is protected on the east side by about 15 small islands, with Isla Smith as the largest.

The literature records a number of expeditions which collected in this part of the Gulf of California. The earliest of these was the *Albatross* in 1911. Although several of the expeditions did collect in the bahía, most attention was given to dredging around Isla Angel de la Guarda, more than 30 km offshore. The reports of the molluscan fauna of the bahía were scarcely significant, the largest number of species reported being 28 by STEINBECK & RICKETTS (1941).

Two more recent papers have been published in the *Transactions of the San Diego Society of Natural History*, reporting on the mollusks collected at Bahía de Los Angeles. McLEAN (1961) reported on the mollusks collected from shore and beach drift. This paper included records from his collection and 4 other sources. COAN (1968) reported benthic species from the inner part of the bahía. Collecting for that report was done with an orange peel grab and followed a grid over the southern part of the bahía where the bottom is primarily silty mud.

Accompanied by Carl and Laura Shy of Westminster, California, we have made 3 collecting trips of about 10 days each to this area in recent years. Base camp was at Punta la Gringa, a small point of land about 14 km by road north of the village. Using small boats and hand-operated dredging equipment, we made approximately 240 drags in depths of 20 - 30 m. The maximum depth recorded in the bahía is 40 m (BARNARD & GRADY, 1968). The bottom was primarily broken rock and shell but in-

cluded samplings of other substrates as indicated on the map.

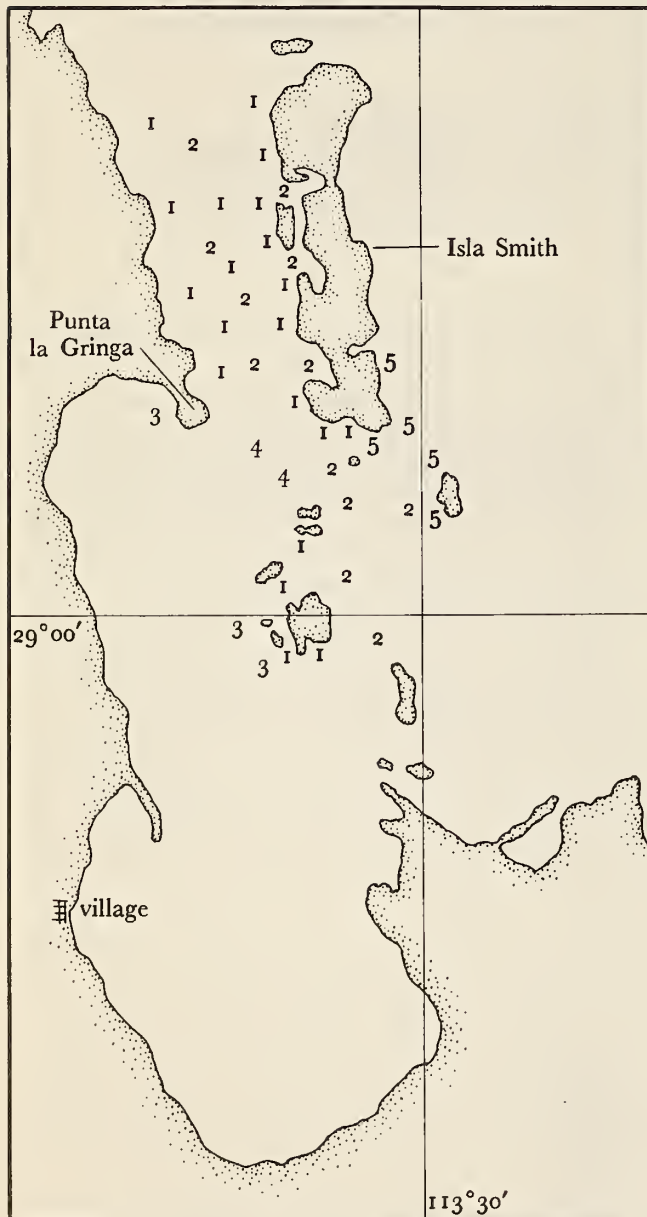
Each trip was associated with periods of extreme low tides, so we did extensive intertidal collecting. Some of this was done along the rocky reefs between Punta la Gringa and the sand spit north of the village. Much time was spent along the rocky shore several kilometers north of camp and along the west side of Isla Smith. A number of species of marine algae and sponges cover the rocky intertidal areas and extend out to about 10 m.

Many of the specimens obtained at the bahía have been significantly larger than the average sizes indicated in KEEN (1971), and have been registered with the Lost Operculum Club, a project of the Conchological Club of Southern California. RODEN & GROVES (1959) report, "An area of low temperatures around Isla Angel de la Guarda is found throughout the year." This is the second largest island in the Gulf of California and parallels the coast about 32 km from the bahía. The channel between reaches a depth of more than 600 fathoms (1096 m). Strong tidal currents force cold water from these depths into the bahía. The maximum temperature in the bahía was reported to be 29.8°C in August, 1962, and the minimum temperature was reported to be 15°C in February, 1962 (BARNARD & GRADY, 1968). The unusually cold water together with the abundance of algae, sponges, coral, and other food sources may contribute to an explanation of why so many "giants of the species" are found here.

A total of 510 different identified mollusks was included in the papers by McLean and Coan. Only 67 species were reported by both authors. This paper adds 160 identified species to their total, which increases the recorded molluscan fauna for Bahía de los Angeles by 36% for a total of 603 species.

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The following list includes those mollusks collected by the Shys and the Poormans and which were not reported in either of the other 2 papers. Identifying numbers from KEEN (1971) precede the names of each species listed.



Bahía de Los Angeles, Baja California Norte, Mexico

- | | |
|--------------------------|------------------------------------|
| 1. broken rock and shell | 3. silty mud |
| 2. fine sand and shell | 4. fine living coral |
| | 5. valves of <i>Pecten vogdesi</i> |

Dredging or intertidal records are indicated by D or S after each species name. Significant range extensions are also included. Several undescribed opisthobranchs and chitons were taken and are now in manuscript.

Our appreciation is extended to Gale Sphon, Los Angeles County Museum of Natural History, for his help in identifying opisthobranch species, and to George Hanselman, San Diego, for help with the chitons.

PELECYPODA

ARGIDAE

- 77 *Anadara (Anadara) adamsi* Olsson, 1961 D (Panama)
 92 *Anadara (Rasia) formosa* (Sowerby, 1833) D (Cedros Isld.)

GLYCYMERIDAE

- 117 *Glycymeris (Tucetona) strigilata* (Sowerby, 1833) D

MYTILIDAE

- 119 *Brachidontes adamsianus* (Dunker, 1857) S
 122 *Brachidontes semilaevis* (Menke, 1849) S

PECTINIDAE

- 183 *Chlamys lowei* (Hertlein, 1935) D
 187 *Cyclopecten exquisitus* Grau, 1959 D
 194 *Delectopecten zacae* (Hertlein, 1935) D

PLICATULIDAE

- 207 *Plicatula inezana* Durham, 1950 S (Southern Gulf of California)
 208 *Plicatula penicillata* Carpenter, 1857 D (Southern Gulf of California)

SPONDYLIDAE

- 213 *Spondylus ursipes* Berry, 1959 D

LUCINIDAE

- 271 *Lucina (Here) excavata* Carpenter, 1857 D
 277 *Lucina (Pleurolocina) leucocymoides* (Lowe, 1935) D
 278 *Lucina (Pleurolocina) undatoides* Hertlein & Strong, 1945 D

UNGULINIDAE

- 293 *Diplodonta suprema* Olsson, 1961 S (Panama)
 296 *Phlyctiderma (Phlyctiderma) discrepans* (Carpenter, 1857) D

SPORTELLIDAE

- 343 *Basterotia (Basterotella) hertleini* Durham, 1950 S

CHAMIDAE

- 348 *Chama frondosa* Broderip, 1835 D
 352 *Chama venosa* Reeve, 1847 D
 357 *Pseudochama janus* (Reeve, 1847) D

CARDIIDAE

- 373 *Lophocardium annettae* (Dall, 1889) D

VENERIDAE

- 381 *Ventricolaria isocardia* (Verrill, 1870) D
 401 *Pitar (Pitar) helenae* Olsson, 1961 D
 414 *Pitar (Lamelliconcha) frizzelli* Hertlein & Strong, 1948 D
 (Southern Gulf of California)
 424 *Megapitaria aurantiaca* (Sowerby, 1831) D
 456 *Chione (Chionopsis) purpurissata* Dall, 1902 D

MACTRIDAE

- 490 *Mactra (Mactrotoma) nasuta* Gould, 1851 D
 497 *Anatina cyprinus* (Wood, 1828) D

TELLINIDAE

- 517 *Tellina (Angulus) meropsis* Dall, 1900 D
 546 *Tellina (Phyllodina) pristiphora* Dall, 1900 D
 551 *Tellina (Tellinella) cumingii* Hanley, 1844 D

PSAMMOBIDAE

- 603 *Gari (Gobraeus) helenae* Olsson, 1961 D

SOLECURTIDAE

- 614 *Solecurtus guaymasensis* Lowe, 1935 D (Guaymas, Sonora)

SEMELIDAE

- 626 *Semele californica* (Reeve, 1853 ex A. Adams, MS) S (Cabo San Lucas)
 634 *Semele junonia* (Verrill, 1870) D
 636 *Semele lenticularis* (Sowerby, 1833) DS (Barra de Navidad, Jalisco)
 647 *Semele simplicissima* Pilsbry & Lowe, 1932 D

MYIDAE

- 673 *Sphenia fragilis* (H. & A. Adams, 1854) D

CORBULIDAE

- 687 *Corbula (Juliacorbula) ira* Dall, 1908 D (Panama)
 692 *Corbula (Varicorbula) speciosa* Reeve, 1843 D

PANDORIDAE

- 733 *Pandora (Pandora) uncifera* Pilsbry & Lowe, 1932 D
 738 *Pandora (Pandorella) cornuta* C. B. Adams, 1852 D (Panama)
 739 *Pandora (Pandorella) granulata* Dall, 1915 D

LYONSIIDAE

- 747 *Entodesma (Phlycticoncha) lucasanum* (Bartsch & Rehder, 1939) D

THRACIIDAE

- 764 *Cyathodonta dubiosa* Dall, 1915 D

VERTICORDIIDAE

- 789 *Verticordia (Verticordia) ornata* (Orbigny, 1846) D

GASTROPODA

FISSURELLIDAE

- 13 *Rimula mexicana* Berry, 1969 D
 22 *Diodora pusilla* Berry, 1959 S
 23 *Diodora saturnalis* (Carpenter, 1864) D
 43 *Leurolepas roseola* McLean, 1970 D

TROCHIDAE

- 86 *Calliostoma mcleani* Shasky & Campbell, 1964 D
 97 *Tegula (Agathistoma) corteziana* McLean, 1970 S

SKENEDAE

- 124 *Parviturbo stearnsii* (Dall, 1918) D

LIOTIDAE

- 130 *Arene (Arene) lurida* (Dall, 1913) D
 134 *Arene (Marevalvata) balboai* (Strong & Hertlein, 1939) D
 135 *Arene (Otollonia) fricki* (Crosse, 1865) D
 138 *Macrarene lepidotera* McLean, 1970 D (Socorro Island)

TURBINIDAE

- 149 *Turbo (Marmarostoma) squamiger* Reeve, 1843 D

LITTORINIDAE

- 179 *Littorina aberrans* Philippi, 1846 S

VITRINELLIDAE

- 393 *Teinostoma (Teinostoma) politum* A. Adams, 1851 S (Ecuador)

ARCHITECTONICIDAE

- 429 *Heliacus caelatus* (Hinds, 1844) D

TURRITELLIDAE

- 441 *Turritella mariana* Dall, 1908 D (Guaymas, Sonora)
 442 *Turritella nodulosa* King & Broderip, 1832 D (Guaymas, Sonora)
 445 *Turritella rubescens* Reeve, 1849 D
 447 *Vermicularia frisbeyae* McLean, 1970 DS (Bahía de Tenacatita, Jalisco)

CERITHIIDAE

- 558 *Diastoma chrysalloidea* Bartsch, 1911 S

EPITONIIDAE

- 633 *Epitonium (Cirsotrema) togatum* Hertlein & Strong, 1951 D
 634 *Epitonium (Cirsotrema) vulpinum* (Hinds, 1844) D
 636 *Epitonium (Hirtoscala) reflexum* (Carpenter, 1856) S
 678 *Opalia (Dentiscala) crenatoides* (Carpenter, 1864) D
 686 *Opalia (Nodiscala) spongiosa* Carpenter, 1864 D

EULIMIDAE

- 707 *Eulima townsendi* (Bartsch, 1917) D
 752 *Niso (Niso) splendidula* (Sowerby, 1834) D

VANIKORIDAE

- 797 *Vanikoro aperta* (Carpenter, 1864) D

CALYPTRAEIDAE

- 817 *Crepidula striolata* Menke, 1851 D
 822 *Crucibulum (Crucibulum) lignarium* (Broderip, 1834) D
 828 *Crucibulum (Dispotaea) concameratum* Reeve, 1859 D

NATICIDAE

- 866 *Natica (Natica) scethra* Dall, 1908 D (Panama)
 893 *Sinum sanctijohannis* (Pilsbry & Lowe, 1932) D (Nicaragua)

COLUBRARIIDAE

- 972 *Colubraria (Colubraria) siphonata* (Reeve, 1844) D

MURICIDAE

- 988 *Murexiella humilis* (Broderip, 1833) D
 1019 *Aspella (Triatella) cunninghamae* (Berry, 1964) D
 1020 *Attiliosa carmen* (Lowe, 1935) D
 1021 *Attiliosa incompta* (Berry, 1960) D
 1058 *Pterotyphis (Tripterotyphis) lowei* (Pilsbry, 1931) D

CORALLIOPHILIDAE

- 1063 *Coralliophila (Pseudomurex) costata* (Blainville, 1832) S

THAIDIDAE

- 1093 *Morula (Morunella) lugubris* (C. B. Adams, 1852) D

BUCCINIDAE

- 1099 *Caducifer (Monostiolum) biliratus* (Reeve, 1846) D
 1124 *Engina fusiformis* Stearns, 1894 D

COLUMBELLIDAE

- 1252 *Nassarina (Steironepion) tincta* (Carpenter, 1864) D
 1261 *Parametaria dupontii* (Kiener, 1849-50) S
 1265 *Strombina (Strombina) angularis* (Sowerby, 1832) D
 1273 *Strombina (Strombina) gibberula* (Sowerby, 1832) D

NASSARIIDAE

- 1293 *Nassarius cerritensis* (Arnold, 1903) D
 1304 *Nassarius insculptus* (Carpenter, 1864) D

OLIVIDAE

- 1363 *Oliva (Oliva) polypasta* Duclos, 1833 DS
 1379 *Olivella (Olivella) gracilis* (Broderip & Sowerby, 1829) D
 1382 *Olivella (Olivella) sphoni* Burch & Campbell, 1963 D

CONIDAE

- 1510 *Conus (Lithoconus) archon* Broderip, 1833 D

TEREBRIDAE

- 1531 *Terebra crenifera* Deshayes, 1859 D
 1535 *Terebra elata* Hinds, 1844 D
 1538 *Terebra glauca* Hinds, 1844 D
 1554 *Terebra ornata* Gray, 1834 D

TURRIDAE

- 1579 *Calliclava alcmena* (Dall, 1919) D
 1599 *Kylis paziana* (Dall, 1919) D
 1615 *Drillia (Drillia) acapulcana* (Lowe, 1935) D
 1637 *Splendrillia bratcheriae* McLean & Poorman, 1971 D
 1641 *Bellaspira acclivicosta* McLean & Poorman, 1970 D
 1643 *Bellaspira melea* Dall, 1919 D
 1648 *Polystira oxytropis* (Sowerby, 1834) D
 1656 *Knefastia dalli* Bartsch, 1944 S
 1663 *Pyrgospira obeliscus* (Reeve, 1843) D
 1676 *Crassispira (Crassispira) maura* (Sowerby, 1834) D
 1688 *Crassispira (Crassispirella) rustica* (Sowerby, 1834) D
 1691 *Crassispira (Dallspira) bifurca* (E. A. Smith, 1888) S
 1699 *Crassispira (Striospira) kluthi* E. K. Jordan, 1936 D
 1701 *Crassispira (Striospira) tepocana* Dall, 1919 D
 1702 *Crassispira (Striospira) xanti* Hertlein & Strong, 1951 D
 1723 *Carinodrillia dichroa* Pilsbry & Lowe, 1932 D
 1727 *Strictispira ericana* (Hertlein & Strong, 1951) D
 1777 *Nannodiella fraternalis* (Dall, 1919) D
 1791 *Kurtziella (Granoturris) antipyrus* (Pilsbry & Lowe, 1932) D
 1810 *Kurtzia arteaga* (Dall & Bartsch, 1910) D
 1813 *Kurtzia granulatissima* (Mörch, 1860) D
 1839 *Daphnella mazatlanica* Pilsbry & Lowe, 1932 S

ACTEONIDAE

- 2229
- Acteon panamensis*
- Dall, 1908 D (Guaymas, Sonora)

ATYIDAE

- 2245
- Haminoea virescens*
- (Sowerby, 1833) S

AGLAJIDAE

- 2254
- Chelidonura inermis*
- (Cooper, 1863) S

APLYSIIDAE

- 2296
- Aplysia*
- (
- Neaplysia*
-)
- californica*
- Cooper, 1863 S
-
-
- Phyllaplysia padina*
- Williams & Gosliner, 1973 S

PLEUROBRANCHIDAE

- 2306
- Pleurobranchus areolatus*
- (Mörch, 1863) S
-
-
- Berthellina citrina*
- (Rüppell & Leuckart, 1828) S

DORIIDAE

- 2327
- Conualevia mizuna*
- Marcus & Marcus, 1967 S

CHROMODORIDAE

- 2328
- Chromodoris banksi*
- Farmer, 1963 S

POLYCERATIDAE

- 2350
- Polycera alabe*
- Collier & Farmer, 1964 S
-
- 2352
- Polycera hedgpethi*
- Marcus, 1964 S
-
- 2353
- Laila cockerelli*
- MacFarland, 1905 DS

GYMNODORIDAE

- 2354
- Nembrotha eliora*
- Marcus & Marcus, 1967 DS

DENDRODORIDAE

- 2359
- Dendrodoris krebsii*
- (Mörch, 1863) S
-
-
- Dendrodoris fulva*
- (MacFarland, 1905) S
-
- 2360
- Doriopsilla albopunctata*
- (Cooper, 1863) S
-
- 2362
- Doriopsilla rowena*
- Marcus & Marcus, 1967 S

TETHYIDAE

- 2370
- Melibe leonina*
- (Gould, 1852) S

ARMINIDAE

- 2373
- Armina californica*
- (Cooper, 1862) DS
-
- 2374
- Histiomena convolvula*
- (Lance, 1962) D

FLABELLINIDAE

- 2382
- Coryphella iodinea*
- (Cooper, 1863) D

AEOLIDIIDAE

- 2388
- Spurilla chromosoma*
- Cockerell & Eliot, 1905 S

ONCHIDIIDAE

- 2395
- Onchidella binneyi*
- Stearns, 1893 S

MELAMPIDAE

- 2399
- Melampus*
- (
- Melampus*
-)
- mousleyi*
- Berry, 1964 S

POLYPLACOPHORA

ISCHNOCHITONIDAE

- 16a
- Radsia eucosmius*
- (Dall, 1919) D
-
- 23x
- Stenoplax circumscinta*
- Berry, 1956 D
-
- 32
- Lepidozonia crockeri*
- (Willett in Hertlein & Strong, 1951) D
-
- 35
- Lepidozonia formosa*
- Ferreira, 1974 D
-
- 37
- Lepidozonia serrata*
- (Carpenter, 1864) D

MOPALIDAE

- 48
- Dendrochiton lirulatus*
- Berry, 1963 D
-
- 50
- Placiphorella velata*
- Dall, 1879 S

SCAPHOPODA

DENTALIIDAE

- 7
- Dentalium*
- (
- Graptacme*
-)
- sectum*
- Deshayes, 1826 D
-
- 11
- Dentalium*
- (
- Tesseracme*
-)
- tesseragonum*
- Sowerby, 1832 D

SIPHONODENTALIIDAE

- 17
- Siphonodentalium quadrifissatum*
- (Pilsbry & Sharp, 1898) D

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